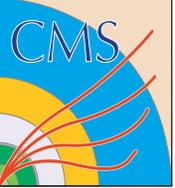




Network and PC system aspects

Eric Cano PH/CMD

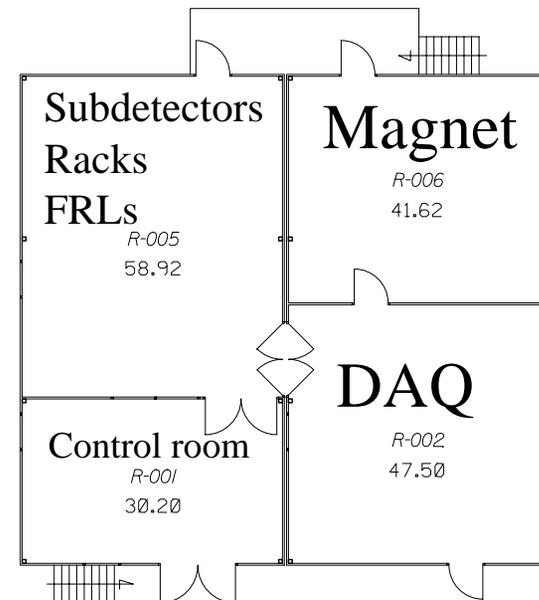


Current status

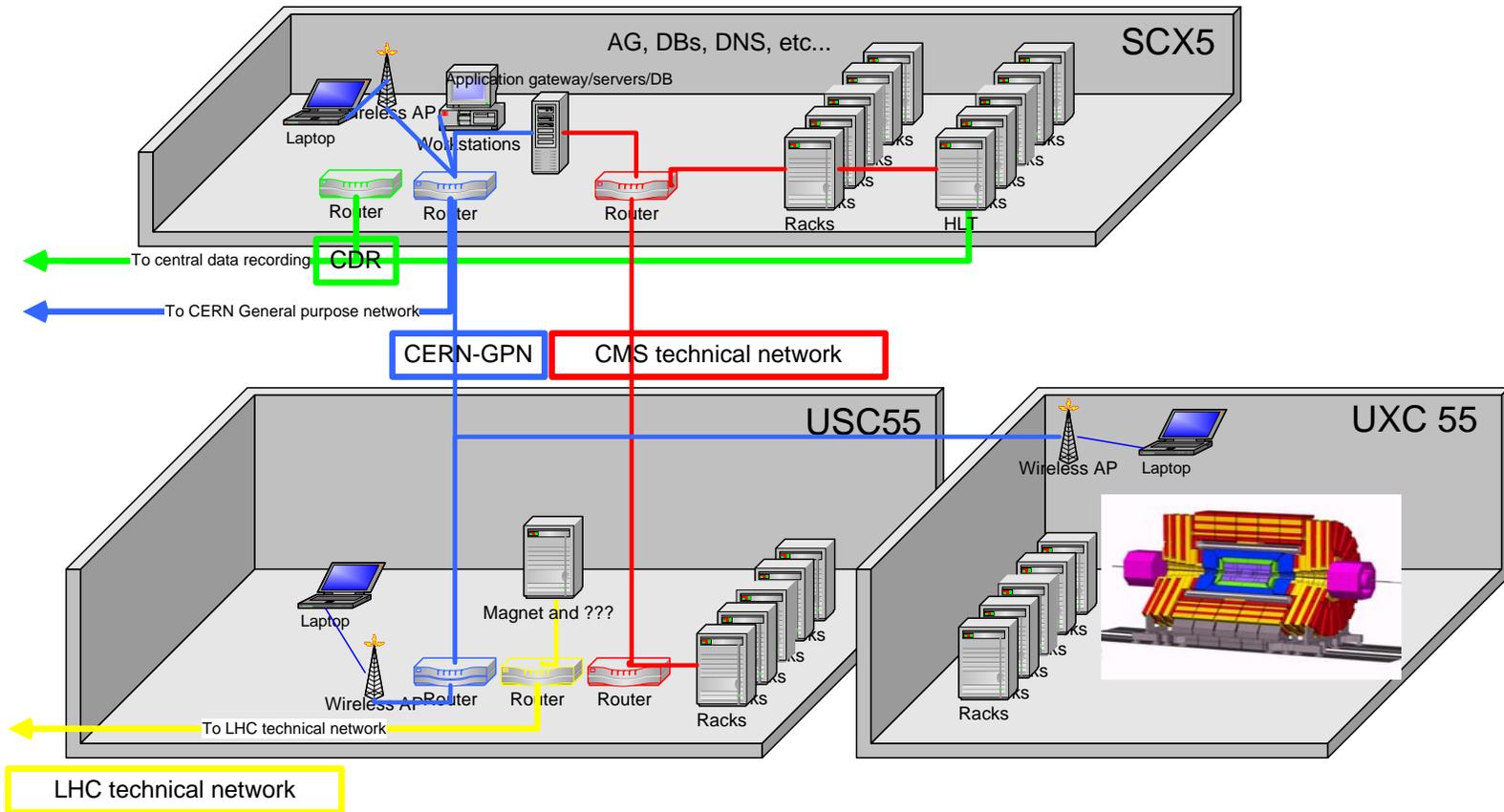


- Network
 - Magnet test
 - Run
 - CNIC environment
- System aspects
 - Linux: Quattor
 - Linux: AIMS and LinuxFC
 - Windows: NiceFC
 - User authentication and authorization
 - Magnet test
 - CMS

- Most sub-detectors on CERN network
- Private network
 - All the DAQ machines but DCS
 - One PC from Trigger, one for ECAL (more to come)
- CERN network
 - Most sub detectors
 - All DCS
- In discussions with IT/CS to try and get a CMS-EN network service in green barrack (for DCS)

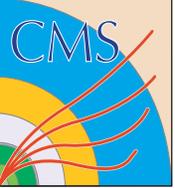


Network: Run



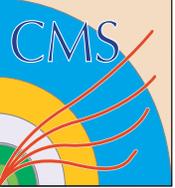
- The 4 networks

- **CMS-Experiment Network (CMS-EN)**
- **LHC-Technical network (TN)**
- **CERN's general purpose network (GPN)**
- **Central data recording (technically, a very restricted part of GPN)**



Network: Run (2)

- CMS Experiment
 - Private network for most of systems in CMS
 - Network for run control and DCS
 - Security
 - Independence
 - Self contained. Implies own DNS, DHCP, install servers, etc...
 - Only fixed machines on CMS-EN (no laptops, few workstations)
 - Experiment should run on this network only
 - HLT could store O(day) of physics data in HLT machines without CDR connection
- CERN General purpose network
 - WiFi for laptops (on CERN network)
 - Workstations
- LHC technical network
- Central data recording
 - Heavily filtered, direct connection to LCG systems in Meyrin (IT) (10Gb/s)



Network: Run (planning)

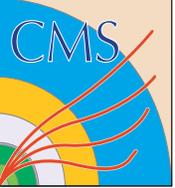


- CNIC now in existence (w.r.t. last year)
 - Deployed by AB department this year
- Cabling of USC finished around now
- Networking UXC55 not solved yet
 - Only GPN on wireless during shutdown planned
 - IT/CS specialists are looking for a solution (fully wireless solution with wireless-to-wireless bridges?)
- Details of cabling for SCX to be planned



Network: CNIC environment

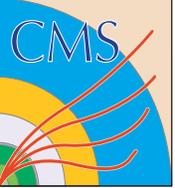
- Choice of implementing our own means of access or using “trust” relationships with GPN machines
 - Currently planned trust for IT’s windows infrastructure: NiceFC, and network monitoring.
 - Trusted machines (CERN network) will see the whole CMS-EN, others will not
- Additionnal (restricted) filtering possible for sensitive devices (PLCs) in CNIC v2
 - Only a limited set of rules allowed not to kill network performance



System: Quattor



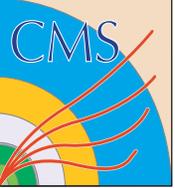
- Quattor: IT-developed package for central deployment of software packages and machines configuration
 - Agent runs on the client machines, and updates them based on rules found in a database (or configuration files, Oracle not mandatory)
 - Eases a lot asynchronous updating. Solves:
 - problems fixed on live systems not coming back at re-install
 - fix not applied on a machine not running at the moment of the update
 - Tight control on versions, can advance or rollback versions of software (currently, apt/yum is only a get-the-latest policy)
- Package installation via RPMS, some packaging required if we want to roll our software via this system
- Not an install system, we will still use AIMS/kickstart



System: Linux – AIMS and LinuxFC



- AIMS: IT maintained central kickstart service (installation)
- LinuxFC: central IT deployment of Quattor



System: Windows – NiceFC



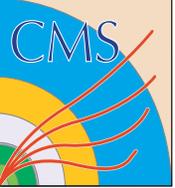
- Centrally (IT) developed and deployed framework for Windows machines installation and configuration
 - No option to get our own instance
 - Licensing issues with Windows outside of cern.ch domain (need for connectivity to central IT)
 - Use it through trust relationship in CNIC



System: User authentication and authorization



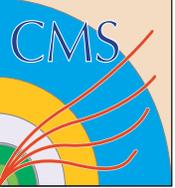
- Linux: still an open issue
 - Make accounts linked to the CERN central ones?
 - Run our own, independent Kerberos realm?
 - Group based authorization
 - Who logs in on machines
 - Who can do what via sudo...
 - SELinux?
- Windows
 - Use central IT accounts to authentication
 - Authorization should be part of the configuration, coming via NiceFC



System: Magnet test



- DAQ
 - Stick to SLC3 (not time for version jump)
 - Private network
 - No Quattor yet
 - Installation with kickstart
 - Maintenance with c3/cexec
- Sub-detectors
 - Only a few of them
 - AIMS seems to be a good solution (CERN-GPN network)
 - Private network a viable alternative for Linux machines (only one currently, more to come)
- Windows
 - Use central services -> CERN-GPN
 - CMS-EN an option if available



System: Run

- Linux: SLC4 (soon to be certified)
- Quattor used very probably, could roll our own instance, or trust IT's
- Authentication for Linux? To be defined
- Windows: NiceFC